

What is claimed is:

- 1                   1. An apparatus for use in an application  
2                   including at least one of clamping and valving, the  
3                   apparatus comprising:  
4                   a support structure; and  
5                   actuator means for operating the support  
6                   structure between a rest position and an actuated  
7                   position.
- 1                   2. The apparatus of claim 1 wherein the  
2                   actuator means is a piezoelectric device.
- 1                   3. The apparatus of claim 2 wherein the  
2                   support structure is a single piece.
- 1                   4. The apparatus of claim 2 wherein the  
2                   support structure is a mechanically active element of the  
3                   apparatus.
- 1                   5. The apparatus of claim 2 wherein the  
2                   support structure includes opposing resilient arm  
3                   portions biased to the rest position.
- 1                   6. The apparatus of claim 5 wherein the arm  
2                   portions are driven from the rest position to the  
3                   actuated position in response to actuation of the  
4                   actuator means.
- 1                   7. The apparatus of claim 6 wherein the arm  
2                   portions are biased to return to the rest position from  
3                   the actuated position in response to deactuation of the  
4                   actuator means.
- 1                   8. The apparatus of claim 2 wherein the  
2                   support structure is made from one or more materials.

1           9. The apparatus of claim 2 wherein the  
2 support structure is made from at least two materials  
3 bonded together.

1           10. The apparatus of claim 2 wherein the  
2 actuator means produces a spatial displacement when  
3 actuated and the support structure includes a pair of  
4 opposing arms disposed relative to the actuator for  
5 amplifying the spatial displacement.

1           11. In an apparatus for use in an application  
2 including at least one of clamping and valving having a  
3 support structure and piezoelectric actuator, the  
4 improvement comprising:  
5           the support structure being a single piece.

1           12. The improvement of claim 11 wherein the  
2 support structure is a mechanically active element of the  
3 apparatus.

1           13. The improvement of claim 11 wherein the  
2 support structure includes opposing resilient arm  
3 portions biased to a rest position.

1           14. The improvement of claim 13 wherein the  
2 arm portions are driven from the rest position to an  
3 actuated position in response to actuation of the  
4 actuator.

1           15. The improvement of claim 14 wherein the  
2 arm portions are biased to return to the rest position  
3 from the actuated position in response to deactuation of  
4 the actuator.

1           16. The improvement of claim 11 wherein the  
2 support structure is made from one or more materials.

1           18. The improvement of claim 11 wherein the  
2     actuator produces a spatial displacement when actuated  
3     and the support structure includes a pair of opposing  
4     arms disposed relative to the actuator for amplifying the  
5     spatial displacement.